

**NATURAL RESOURCES CONSERVATION SERVICE
CONSERVATION PRACTICE STANDARD**

CRITICAL AREA PLANTING

(Ac.)

CODE 342

DEFINITION

Establishing permanent vegetation on sites that have or are expected to have high erosion rates, and on sites that have physical, chemical or biological conditions that prevent the establishment of vegetation with normal practices.

PURPOSE

- Stabilize areas with existing or expected high rates of soil erosion by water
- Stabilize areas with existing or expected high rates of soil erosion by wind
- Rehabilitate and revegetate degraded sites that cannot be stabilized through normal farming practices
- Stabilize coastal areas, such as sand dunes and riparian areas

CONDITIONS WHERE PRACTICE APPLIES

This practice applies to highly disturbed areas such as active or abandoned mined lands, urban conservation sites, road construction areas, conservation practice construction sites, areas needing stabilization before or after natural disasters such as floods, hurricanes, tornados and wildfires and other areas degraded by human activities or natural events.

CRITERIA

General Criteria Applicable To All Purposes

A site investigation shall be conducted to identify any physical, chemical or biological

conditions that could affect the successful establishment of vegetation, and to plan the needed site preparation and protective measures.

Species selected for seeding or planting shall be suited to current site conditions and intended uses. Selected species will have the capacity to achieve adequate cover, density and vigor within an appropriate period to stabilize the site sufficiently to permit suited uses with ordinary management activities.

No plants listed on Idaho's Noxious Weeds list (<http://www.agri.state.id.us/Categories/PlantsInsects/NoxiousWeeds/indexnoxweedmain.php>) shall be planted.

Species, rates of seeding or planting, minimum quality of seed or planting stock, such as pure live seed (PLS) or stem caliper, method of seedbed preparation and method of establishment shall be specified before application. Only viable, high quality seed or planting stock will be used.

Seeding or planting shall be done at a time and in a manner that best ensures establishment and growth of the selected species. Measures that constitute successful establishment, e.g. minimum percent ground/canopy cover, percent survival, stand density, etc. shall be specified before application.

Appropriate planting dates shall be scheduled during the planning process to ensure planned species have the optimum soil moisture for germination and the best conditions for establishment.

Specified seed mixtures, methods of site preparation and date of planting shall be in

accordance with Plant Materials Technical Note 24. *The seeding rates will be up to 150% (1.5 X) of the rates listed in Technical Note No. 24.*

Based on seed tags, adjust seeding rates at the field site to insure the desired amount of pure live seed (PLS) is applied. *Refer to Idaho Plant Materials Technical Note 4.*

Fertilization, mulching, hydro-seeding, hydro-mulching, erosion control fabric or other facilitating practices shall be timed and applied to improve the chance of establishment of the planned species. Apply all nutrients in accordance with the Nutrient Management (590) standard.

Plantings shall be protected from pests (e.g. weeds, insects, diseases, livestock and wildlife) as necessary to enhance the chance of stand establishment. Plan and apply pest management following Pest Management (595).

The use and management of nutrients and pesticides shall minimize impacts to surface and ground-water quality while achieving desired vegetation establishment.

Erosion and sedimentation impacts of plantings on surface water will be addressed in the planting plan. This will include the short-term and construction-related effects on downstream water courses.

The amount of plant biomass and cover needed to reduce wind and water erosion to the planned soil loss objective shall be determined using the current approved wind and/or water erosion prediction technology.

Additional Criteria to Restore Degraded Sites

If gullies or deep rills are present, they will be treated, if feasible, to allow equipment operation and ensure proper site and seedbed preparation.

Based on a soil test, soil amendments will be added as necessary to ameliorate or eliminate physical or chemical conditions that inhibit plant establishment and growth. Required amendments, such as compost or manure to add organic matter and improve soil structure and

water holding capacity, agricultural limestone to increase the pH of acid soils or elemental sulfur to lower the pH of calcareous soils, shall be included in the site specification with amounts, timing and method of application.

Additional Criteria to Restore Sand Dunes and Coastal Sites

Plants for sand dunes and coastal sites must be able to survive being buried by blowing sand, sand blasting, salt spray, salt water flooding, drought, heat and low nutrient supply.

Local plant lists including appropriate species shall be developed and utilized.

Sand trapping devices such as sand and silt fences or bioengineering practices such as brush revetment and brush mattresses shall be included in the revegetation/stabilization plans where applicable.

CONSIDERATIONS

Species or seeding mixtures that are adapted to the site and have multiple values should be considered. Native species should be considered, when appropriate, to site treatment.

Avoid species that may harbor pests. Species diversity should be considered to avoid loss of function due to species-specific pests.

Critical area planting sites are generally severely eroded or disturbed and have low fertility and few, if any, resident seeds. High seeding rates are commonly needed to insure adequate vegetative cover. Consider initial and follow up applications of fertilizer to ensure stand establishment.

On degraded sites, additional practices such as erosion control fabric, hydro-mulching and hydro-seeding should be considered, in addition to soil amendments, to provide additional erosion control and to improve the chance of vegetation establishment.

Consider using hydro-seeding and mulching on steep, inaccessible sites not suitable for straw mulch planting. Do not use when high winds or animal or foot traffic are expected to interfere. Consider the effective range of straw blowing

equipment and hydro-seeders when use is planned.

A split hydro-mulch and hydro-seeding operation is recommended on sites suitable to hydro-mulch planting. Seed and fertilizer should be applied first to provide better seed-to-soil contact and then hydro-mulch the site.

If mulching is needed, follow Mulching (484).

Consider exclusion of livestock and other disturbances during stand establishment.

Consider effects on the visual quality of downstream water resources.

Plans should be in compliance with the Migratory Bird Treaty Act.

Planning and installation of other conservation practices such as Diversions, Land Smoothing, Obstruction Removal, Surface and Subsurface Drains or Underground Outlets may be necessary to prepare a critical area for planting.

PLANS AND SPECIFICATIONS

Prepare plans and specifications for each critical site according to the criteria and operation and maintenance sections of this standard. Specifications shall describe the requirements for applying this practice to meet the intended purpose.

The following elements shall be addressed in the plan, as applicable, to meet the intended purpose.

- Site Preparation
- Topsoil
- Fertilizer Application
- Seedbed/Planting Bed Preparation
- Methods of Seeding/Planting
- Time of Seeding/Planting
- Selection of Species
- Seed/Plant Source
- Seed Analysis
- Rates of Seeding

- Mulching, Hydro-seeding, Hydro-mulching, Erosion control blanket
- Planting Trees, Shrubs and Vines
- Supplemental Water for Plant Establishment
- Supplemental Water for Long-term Plant Management
- Protection of Plantings

Seeding specifications shall be recorded using ID-CPA-025 specification sheet, job sheets and narrative statements in the conservation plan or other acceptable documentation.

Seeding rates may be increased to 150 percent of the rates specified in Plant Materials Technical Note No. 24, and rates on irrigated land may be increased to 200 percent.

Generally accepted seeding dates are:

MLRA	Spring* (before)	Fall** (before)	Dormant*** (after)
8	4/1	10/1	11/15
9	4/15	9/20	11/1
10	5/15	9/10	10/20
11	4/15	9/20	11/1
12	5/15	9/20	11/1
13	5/15	9/10	10/20
25	5/15	9/10	10/20
28A	5/1	9/20	11/1
43A	5/15	9/1	10/20
43B	5/15	9/1	10/20
43C	5/15	9/1	10/20
44	5/15	9/1	11/1
47	5/15	9/10	10/20

Seeding dates may vary from these guidelines based on local experience and conditions.

* Complete spring plantings as early as possible.
 ** Fall seedings on irrigated land only.
 *** Earlier dormant planting dates are acceptable if the measured soil temperature is below 45 degrees F.

Actual seeding rates applied will be within 80 – 125 percent of rate expressed in seeding specification ID-CPA-025.

The area will be shaped or graded to eliminate existing surface erosion patterns and improve ease of seeding operations.

Sites reshaped with heavy equipment may have a smooth hard surface and compacted soils making it difficult to prepare a good seedbed. Disking, ripping or other treatment may be necessary to prepare the site for seeding.

The horizontal indentations left by tracked equipment may provide a suitable planting site on steep slopes.

Straw is the preferred mulch but needs to be anchored in place with equipment such as rollers and crimpers. Tackifiers, woven netting and other covers can be used to anchor mulch when slopes are too steep to use equipment on the site. Wheat straw deteriorates less rapidly and results in less volunteer growth compared to barley straw. Use clean straw to minimize spread of weeds. Woven fabric and artificial mulches can also be used.

Drills will have agitators and other equipment needed to get uniform seeding. Rice hulls or other dilutants may be necessary for uniform seed flow through drill. Drilling will be on the contour or across slope where practical.

The use of certified seed is highly recommended. When seed is broadcast, the seed will be covered by hand raking or dragging harrows, chains or other suitable equipment over the surface to cover the seed.

Nurse crops will not be used.

When plantings are to be irrigated, maintain adequate moisture in at least the upper six (6) inches of soil during the first four (4) weeks and then in the upper 12 inches until the end of the growing season. Seedlings may be susceptible to excessive irrigation during establishment.

For shrub and tree plantings, refer to Tree and Shrub Establishment (612) and Plant Materials Technical Notes No. 24, 32, 41 and 43.

When woody cuttings of willow, dogwood and cottonwood are planned, refer to Plant Materials Technical Note No. 23.

Planting specifications shall be recorded using ID-CPA-028 Tree–Shrub–Riparian Planting Specification sheet in the conservation plan or other acceptable documentation.

When using sod, the soil surface will be smoothed so air pockets will not form beneath the sod.

Sod strips will fit closely together and tamped tightly in place. Sod will be staked down as needed to protect from movement on steep slopes.

Cut sod will be kept moist. The maximum time period between cutting and laying sod will not exceed 96 hours.

Areas covered with sod will be adequately irrigated until sod has become well established. Some sod species may require permanent irrigation to maintain adequate cover.

OPERATION AND MAINTENANCE

Use of the area shall be managed to stabilize the site and achieve the intended purpose.

Control or exclude pests that will interfere with the timely establishment of vegetation.

All seedings will be protected from grazing by domestic animals and other disturbances until stand establishment. Seeded species may be considered established when they are well rooted (not easily pulled out of the ground by hand) and/or are producing reproductive stems. A minimum of one full growing season is recommended.

Inspections, reseeding or replanting, fertilization and pest control may be needed to insure that this practice functions as intended throughout its expected life.

Observations of establishment progress and success should be performed at regular intervals until the practice has met the criteria for successful establishment and implementation.

Where establishment of vegetation creates potential habitat for grass-nesting birds, the impacts of vegetative disturbance upon these birds and their nests should be considered and included in operation and maintenance plans.

Maintenance activities that result in disturbance of vegetation will not be conducted during the

primary nesting season for grass-nesting birds where occupied habitat for these species exists.

REFERENCES

NRCS – Idaho Plant Materials Technical Notes:

No. 4 – Reading Seed Packaging Labels and Calculating Seed Mixtures

No. 9 – Plants for Saline to Sodic Soil Conditions

No. 10 – Pasture and Range Seedings

No. 23 – How to Plant Willows and Cottonwoods for Riparian Rehabilitation

No. 24 – Grass, Grass-Like, Forb, Legume and Woody Species for the Intermountain West

No. 32 – Native Shrubs and Trees for Riparian Areas

No. 41 – Restoration and Diversification of Plant Communities with Woody Plants

No. 43 – Tree Planting Care and Management

USDA, NRCS. 2006. The PLANTS Database (<http://plants.usda.gov>, 19 October 2006). National Plant Data Center, Baton Rouge, LA 70874-4490 USA.

USDA. 2006. Land Resource Regions and Major Land Resource Areas of the United States, the Carribean, and the Pacific Basin. USDA Handbook 296. <http://soils.usda.gov/survey/geography/mlra/>.